Washington State Department of Ecology Application in Response to

U.S. Environmental Protection Agency, Region 10
Puget Sound Action Agenda: Ecosystem Restoration and Protection (EPA-R10-PS-1007)

a. Area of Emphasis: Toxics and Nutrients Prevention, Reduction, and Control

b. Title: Strategic Framework for the Prevention, Reduction and Control of Toxics and Nutrients

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d. Abstract: Thousands of toxic chemicals are in use today. They are in the air, water, soil, animals, fish, and our bodies. Some toxic chemicals impair development, some affect reproduction, some cause cancer, others can be devastating to fish or other species. Nutrients occur naturally in the marine and fresh waters of the Puget Sound ecosystem, but human contributions of excess nutrients can lead to lower levels of dissolved oxygen as excess algae decompose. As Lead Organization, the Department of Ecology will work with various partners to develop and implement projects in line with the toxics and nutrients strategic framework identified in this proposal. The goal of this strategy is to protect and improve both human and environmental health in the Puget Sound ecosystem and to establish prevention as the smartest, most cost effective, and healthiest approach to reducing toxic threats and nutrient impacts.

e. RFP Awareness: The Department of Ecology has applied for similar funding in previous years. The Department routinely communicates with EPA about funding opportunities.

f. Total Amount of Funding Requested: $48,000,000
   - Round One Funding - $3,000,000
   - Rounds Two through Six Funding - $45,000,000

g. Washington State Department of Ecology DUNS Number: 781347828

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ATTACHMENTS

COMPONENT ONE- STRATEGIC COORDINATION

Strategic Coordination, Partnership, and Advice (See component 1 of work plan and budget for additional details)

Coordination with the Puget Sound Partnership Management Conference, lead organizations, lead entities, and other strategic partners is essential to achieving the outcomes of the six-year strategy. We propose three areas of coordination. First, the state agency lead organizations (which term includes agencies that are "co-leads") will immediately establish a lead-staff coordinating team (LO Group), including PSP and EPA staff, which will carry forward the highly collaborative and transparent process employed to develop the four implementation strategies. Potential state agency lead organizations have agreed to a common, coordinated leadership strategy to develop, implement and adaptively manage the six-year strategies across the four areas of emphasis in a collaborative fashion with governmental and non-governmental entities. It will be critical that this group establish a common approach for integrating and aligning the work. For example, one of the first tasks will be to review the final work plans negotiated with EPA to identify cross-cutting actions that meet multiple objectives beyond just one area of emphasis. These actions would likely be prioritized for early support. This step will also ensure that there is no overlap or duplication of efforts with activities already funded by the federal government.

Second, we recognize an ongoing need to seek strategic advice from a broad diversity of partners across the Puget Sound Management Conference including, but not limited to, other Lead Organizations; the Puget Sound Partnership, Ecosystem Coordination Board, Science Panel, caucus forums and local implementing entities.

Third, we will establish a core group (Toxics and Nutrients Team) to help guide and oversee implementation of the respective strategies Likely advisory functions from partners include, but are not limited to,

- Providing ongoing feedback on implementation strategies, including near-term priorities; (ECB and entire Management Conference)
- Consulting on criteria for direct and competitive sub awards; (Management Conference)
- Providing review of proposed annual investments designed to implement strategy;)
- Playing central role in integrating and implementing the public awareness and engagement efforts of the LOs and PSP;
- Assessing progress in achieving outcomes as they align with Action Agenda benchmarks/indicators across the Lead Organizations;
- Participating in adaptive management analysis.

Public Coordination with PSP on Public and Stakeholder Involvement and Stewardship (See component 1.4 of work plan and budget for additional details)

This element has two basic components: (1) public and stakeholder involvement (i.e., transparency) process around the Action Agenda and respective lead organization work areas; and (2) coordination with the Partnership's awareness and stewardship programs focused on citizen best management practices. We will closely coordinate with the Partnership as they implement both the public and stakeholder involvement and stewardship programs. We will contribute information and expertise for marine and near shore ecosystem components.

Coordination with Local Governments (See component 1.4 of work plan and budget for additional details)

Local governments are a key strategic partner in protecting and restoring Puget Sound. Many have devoted enormous energy and resources to overcoming barriers to progress. They are indispensible partners and must be supported in their work to enforce local land use, health, and water quality regulatory programs, many of which are key to protecting and restoring Puget Sound. Their education, outreach and public engagement programs have advanced work in many areas of Puget Sound recovery. We will engage local governments through many avenues to gain the benefit of the knowledge and work to protect and restore Puget Sound.

Coordination with Tribal Governments (See component 1.4 of work plan and budget for additional details)

Puget Sound is part of a larger transboundary ecosystem which includes Puget Sound, Georgia Basin, and the Strait of Juan de Fuca, referred to together as the *Salish Sea* and which is the ancestral home of numerous Indian Tribes and First Nations, most of whom share the Coast Salish culture extant in this region for thousands of years. Tribes' critical role in the stewardship of the *Salish Sea* region spans distant as well as recent history. The economic and cultural well-being of tribes is directly linked to the health of their homelands and the natural systems supporting their resource base. Tribes in the Puget Sound Basin have knowledge, data and on-the-ground experience of their watersheds which could enrich the Lead Organizations ability to develop and implement the six-year strategy. They have the experience and capability to implement protection and restoration projects in their watersheds. The goal is to integrate tribal knowledge and resources effectively into the six-year strategies. In 1974, the Boldt Decision reaffirmed specific Tribes' treaty-protected fishing rights and more recent federal court rulings upholding treaty-reserved shellfish harvest rights confirmed these Tribes as natural resource managers. The unique legal status of Tribes and presence of tribally reserved rights and cultural interests throughout the state creates a special relationship between Tribes and the state agencies responsible for managing and protecting the natural resources of the state. The foundation of the tribal co-management, government to government practice has substantial precedence and is the outcome from implementation of treaties, the U.S. v. Washington court decisions, and numerous subsequent decisions. The 1989 Centennial Accord between the federally recognized Indian Tribes in Washington State and the State of Washington commits the parties to a government to government approach to address issues of mutual concern. Tribes have consistently demonstrated their commitment and ability to be competent and professional natural resource

managers. Tribal homelands are the rivers and shorelines of this state and so tribes have an inextricable link with its water resources. EPA, Washington State, Tribes and Tribal consortia, local governments, and nonprofit organizations have partnered for over 20 years to protect and restore Puget Sound through the Clean Water Act (CWA) National Estuary Program. Effective coordination of state/tribal expertise will clearly help develop programs that will be far more appropriate and efficient than either could develop alone. The Lead Organizations commit to work within a cooperative management process with tribes to develop and implement the six-year strategies.

Coordination with Federal Partners (See component 1.4 of work plan and budget for additional details)

Federal Partners represented on the Puget Sound Federal Caucus have been participating in many Puget Sound protection and restoration programs for many years, and our strategy seeks to leverage and increase their important contributions. Relationships with EPA (National Estuary Program, among others), the US Army Corps of Engineers (PSNERP), NOAA (Community Restoration, among others), as well as the US Fish and Wildlife Service, Federal Emergency Management Agency, NRCS, and many others will be essential for progress.

Aligning many federal programs with the goals of the Action Agenda has been an important piece of work by the Federal Caucus. We anticipate working with the Caucus to achieve improved alignment in programs that touch the health of the Puget Sound nearshore and marine environments.

Coordination with Canada (See component 1.4 of work plan and budget for additional details)

Puget Sound is part of the Salish Sea that encompasses the Puget Sound of the United States and Georgia Basin of Canada. The international forums mentioned immediately below provide Puget Sound Management Conference partners access to Canadian environmental management agencies and planning processes on topics and issues of mutual interest and concern.
Among these international forums, the Partnership and Washington Department of Ecology work cooperatively with Environment Canada and the British Columbia Ministry of the Environment. The Partnership participates in and convenes the Coastal and Oceans Task Force with representatives from the State of Washington and the British Columbia Ministry of the Environment. This task force is empowered by the Washington State-British Columbia Environmental Cooperation Council to address coastal issues of mutual interest, and includes collaboration with the U.S. Environmental Protection Agency. Current agreements include short-, medium- and long-term priorities for governance and information sharing; science and policy; shared indicators of ecosystem health; and issue areas for habitat restoration, climate, and water quality. The Environment Canada- U.S. Environmental Protection Agency Statement of Cooperation Working Group is another venue for collaboration.

Climate Change

According to a study on Puget Sound prepared by the University of Washington's Climate Impacts Group, there is considerable evidence that regional temperatures are already rising and precipitation patterns are changing. Projections suggest that sea levels will rise, snowpack is likely to melt earlier each season, and the damage from winter storms could increase. Climate change

will be factored into all aspects of the six year strategy including the evaluation and selection of sub-award projects.

The draft Washington State Energy Strategy reports that petroleum use, primarily from transportation, accounted for 71 percent of CO_2 emissions. Strategies to meet the state's greenhouse gas reduction targets rely heavily on meeting the statutory goal to reduce vehicle miles traveled. Principle five of the draft state energy strategy is to improve transportation efficiency through regional transportation planning. A key tool in meeting this goal is the redevelopment of compact urban centers and in preventing inefficient expansion of urban areas. To the extent applicable, the strategies in this proposal will be coordinated with Ecology's plans to address climate change and the state energy strategy in partnership with Washington State Department of Transportation. This state partnership complements the national partnership between the EPA, HUD, and USDOT.

COMPONENT TWO –STRATEGIC INVESTMENTS

STRATEGIC INVESTMENT (Sub-Award Process)
(See Components 1 and 2 of work plan and budget for additional details)

The proposed sub-award process is intended to efficiently provide funding to projects that most effectively and/or efficiently implement the priorities articulated in this proposal and demonstrate progress, in an adaptive management framework, toward 2020 ecosystem targets and interim benchmarks. Several concurrent activities must take place to assure that Round 1 strategic investment priorities and the sub-award operational processes are established quickly for timely processing of initial work under this grant.

Establish Round One Strategies, Processes, and Decision-Making Criteria

The LO Coordinating Group (Group) described earlier will meet to decide on outputs and outcomes desired from strategic cross-cutting investments. Lead organizations will also jointly create a coordinated and unified timeline to facilitate the ability to package proposals that fund crosscutting activities.

The Toxics and Nutrients Team described earlier will refine desired outputs, outcomes and decision-making process and criteria for their respective areas of emphasis by the beginning of March 2011. The Toxics and Nutrients team will (at a minimum) consist of staff from various programs within Ecology, with representation from EPA, PSP, and Health to establish the process and criteria for selecting toxics and nutrients prevention, reduction, and control actions in line with the areas of investment outlined in the technical approach section of this proposal.

In addition, the Team will continue to refine and implement the attached work plan to meet EPA requirements under this grant including a Quality Management Plan (QMP) for collection and standardized reporting of environmental data.

Criteria will be developed and vetted through coordination with the Management Conference, including Local Integrating Organizations (LIOs) where they have been established. The sub-award process will include a combination of direct (non-competitive) awards to Ecology, direct (non-competitive) awards with other entities, and competitive awards. Lead organizations have committed to providing a transparent rationale for any decisions that result in direct awards with other entities that explains why the work should be performed by the entity named.

Launch Single Portal Application Site

Lead organizations are committed to creating a seamless process that facilitates the ability of applicants to apply for funds easily and develop crosscutting proposals. A seamless process will also reduce duplication of work in contract administration, monitoring, and reporting requirements for both applicants and the lead organizations. We will coordinate with other lead organizations and the Puget Sound Partnership to jointly create a single application point by March 1, 2011. This single application point will assure that potential applicants can easily access and monitor funding opportunities. It will also allow lead organizations across ecosystem categories to provide an efficient, coordinated process for making and managing competitive sub-awards and to ensure no duplication with existing or proposed projects.

Cross-Cutting Issues: Actions that Cross RFP Areas of Emphasis

There are threats to Puget Sound recovery that cross jurisdictional boundaries, disciplines, and parts of the ecosystem. As a result, lead organizations will facilitate innovative strategies and actions that resolve barriers to implementation, propose solutions, and achieve synergistic results across the ecosystem areas of emphasis defined by the EPA RFP (EPA-R10-PS-1007).

- Seek proposals from watersheds or jurisdictions that will implement solutions that address cross-cutting issues comprehensively. Lead Organizations will compare the six year strategies for the four areas of emphasis to identify high priority cross-cutting issues. Examples include (a) identifying and addressing critical connections among nearshore ecosystem processes and water and sediment quality (e.g., priority coastal inlets that may increasingly receive contaminated water from developing watersheds; (b) developing a comprehensive strategy to address the water quality and habitat impact of outfalls; and (c) Funding a network of effective advocates for Puget Sound recovery.
- Leverage additional funding through partnering with sister agencies to enact a state comprehensive sustainable funding strategy and with private entities, such as the Puget Sound Foundation. Lead organizations will work others to identify the appropriate amount of funding to designate for this purpose, based on the nexus of the six year strategies and the objectives of potential investors.

Processing Round 1 RFP(s)

The target date for developing and announcing a request for proposal(s) (RFP) is March 31, 2011, to ensure that all Round 1 sub-awards are initiated by July 1, 2011. Representatives from the LO Group will develop a common application form and common language for the application process, while the individual Teams will develop the decision-making criteria for each category of strategic

investment. Applications received will be distributed, reviewed, and prioritized using criteria developed by the core Teams. A draft priority list of projects to be funded will undergo a final technical and policy review to ensure that actions proposed are consistent with the Action Agenda, the strategic framework outlined in this proposal, Open Standards, and achieving 2020 targets and benchmarks.

Where possible and consistent with our priorities and areas of investment, we will use and/or enhance existing contracting mechanisms. Lead Organizations will attempt to set deadlines to avoid conflicts with existing, major grant processes such as those related to the Salmon Recovery Funding Board, Washington Wildlife and Recreation Program, Centennial Clean Water Fund, Estuary and Salmon Restoration Program, or Aquatic Lands Enhancement Account.

Executing Sub-Awards (Contracts, Interagency Agreements, Memoranda of Understanding)

The target date for execution of the first round of sub-awards will be July 1, 2011. All sub-award contracts will be "deliverables based" that link financial reimbursement to a demonstration of meeting major project milestones and deliverables. This method engages lead organizations and sub-awardees in up-front thinking to define the milestones and deliverables that the sub-award will result in, creates clear points of consultation between Lead Organizations, sub-awardees and EPA and assures that dollars spent achieve project milestones and outputs.

In addition, all sub-awards will include provisions to ensure implementation is monitored and that lessons learned can be disseminated among sub-awardees, the Management Conference, and other interested parties, as well as be used to adaptively manage the Action Agenda. Some or all sub-awards will be the subject of effectiveness monitoring as well, according to the needs identified by the adaptive management component of this proposal. Sub-awards involving collection of environmental data will require a Quality Assurance Project Plan (QAPP) that meets those standards of the Ecology's QAPP.

Funds will be administered via the most efficient means possible either directly from Ecology or through existing funding mechanisms either within Ecology or partner organizations.

Round 2 Sub-Awards

Ecology will evaluate the processes developed in Year One for sub-awards and will revise as needed for Round 2. The Toxics and Nutrients Team will review Round 1 activities and revise the process and criteria for selecting toxics and nutrients prevention, reduction, and control actions as outlined in the areas of investment in the technical approach section of this proposal.

Sub-Awards for Rounds Three, Four, Five and Six

Ecology will evaluate the processes developed in previous years and will make revisions as needed for subsequent years. The Toxics and Nutrients Team will review the previous years' activities and revise the process and criteria for selecting toxics and nutrients prevention, reduction, and control actions as needed to accomplish outputs and outcomes outlined in this proposal.

COMPONENT THREE – ADAPTIVE MANAGEMENT

Adaptive Management (See Component 3 of work plan and budget for additional details)

Adaptive management is the cycle of exploration, action, evaluation, and adjustment that links science and policy. It is a vital element of the Puget Sound Partnership's *Strategic Science Plan* (2010) and to ongoing revisions of the Action Agenda and the Puget Sound Partnership's performance management system. It will be a key feedback mechanism for helping to ensure that new information and facts are used to inform the refinement of strategies and actions necessary for the recovery of Puget Sound. Draft guidance and references for applying an adaptive management framework for improving ecosystem protection efforts will be provided by PSP and the Science Panel to the other Management Conference participants and Lead Organizations by July 1, 2011.

Target Setting

Lead Organizations will actively participate in ecosystem and pressure reduction target setting processes coordinated by the Puget Sound Partnership.

Open Standards

Lead Organizations will actively participate in ongoing and increasingly more robust development and use of the Open Standards framework coordinated by the Puget Sound Partnership at the Basin and local scales to logically align strategies and actions that will result in the reduction of pressures and the achievement of ecosystem goals, and help to develop clear, specific measurable outcomes.

COMPONENT FOUR – PROJECT MANAGEMENT

(See Components 1-4 of work plan and budget for additional details)

Financial Management Systems

The Department of Ecology uses an integrated, centralized financial management system model. Each year, Ecology successfully manages $550 million dollars in grants and contracts in Washington State ($83,029,619 in federal project expenditures in the fiscal year ending June 30, 2010), along with a $500 million loan portfolio.

Fast and accurate – Washington State ranked Best in Nation for ARRA. The national ARRA process tested the financial management capabilities of every state agency involved. Washington State was #1 in the country for the speed, accuracy, and completeness of our work.

Project and information management. Successful financial management is accomplished through active sub-grant management and support, and through stable, well-maintained information systems. We have actively managed sub-grants since the mid-1980's, without significant audit findings. Budgeting and accounting are conducted through centralized

statewide systems. (http://www.ofm.wa.gov/isd/sysdefinitions.asp) Integrated with the statewide systems are agency systems tailored to specific functions. Ecology manages and tracks payments on loans and contracts using our Contracts and Grants Payable system, a stable agency system with updates to run on a contemporary platform. With well-designed systems and experienced, well-trained staff, Ecology can not only award grants and contracts with confidence, but also detect and resolve potential problems early.

Field presence. Our regional and field office staff watch projects start and develop, confirm performance on-the-ground, and help us take corrective action early where needed. Our good working relationships with sub-grantees allow us to collaborate quickly to respond to unforeseen challenges, and ensure successful results within guidelines.

Reliable management of matching funds. Ecology's reliable financial systems have been designed and refined to budget, account for, and track the non-federal match linked to each federal fund source and sub-grantee project. Experienced staff understand federal match requirements, and are alert to any potential double-counting.

Accurate & Verifiable Distribution of Labor Costs. Within the agency, our time management system accurately distributes labor costs according to how time is actually spent. This positive time management system records the actual time employees spend on different projects. It provides a solid, accurate basis for the proper distribution of direct labor costs and the allocation of indirect overhead costs.

Financial Management for Results – Environmental Outcomes. Ecology incorporates environmental outcome monitoring and reporting within the scope of our sub-grantee project agreements. Sub-grantees continue to conduct monitoring and report results for a minimum of three years after project funding is closed.

Programmatic Capability and Past Performance

A. Past Projects

Revitalizing the Puget Sound Estuary Program (X-96028501) - Since 2006, this EPA grant provided nearly $2.5 million to the Washington Department of Ecology (Ecology) to accelerate and improve efforts to address the health of Puget Sound to help address issues in the Puget Sound such as: support planning through the Puget Sound Partnership development of the Puget Sound Management Plan; enhance public information and participation; provide grants to Puget Sound watershed areas to assist with integration of the existing salmon recovery, land use, and water quality efforts; and, advance science to improve understanding of pollution effects on the Puget Sound ecosystem. This grant contains 6 tasks and 12 sub-tasks. Each of these was a sub-award. Sub-awards involve several elements within Ecology, WDFW, Northwest Indian Fisheries Commission, NOAA, EPA, and private contractors. Semiannual progress reports were developed and submitted on time to EPA. To date, expected outputs and outcomes have been achieved for all tasks and sub-tasks except for tasks which continue to 6/30/2011. Each sub-award has an appointed project manager and Ecology designated a single point of contact to successfully manage, monitor, track and report to EPA. Added support is provided by a budget planner,

fiscal office oversight, and quarterly reviews. Adequate and timely progress reports contain detailed discussions of each project, outputs, outcomes, and fiscal status of federal funds including status of match funding.

Puget Sound Estuary Program 2008-2009 Cooperative Agreement Enhancement (CE-96074401-3) - This grant provided a total of $ 7,347,209 for the purpose of developing source control strategies for toxics and nutrients entering Puget Sound. This project required complex technical work including sampling over large geographic area, laboratory and data analyses, and resultant detailed reports. Sub-awards involved several elements within Ecology, WDFW, EPA, US FWS, NOAA, and several private contractors. Semiannual progress reports were consistently developed and submitted on time to EPA. EPA designated the reports as models of grant reporting. To date, all expected outputs and outcomes have been achieved for tasks # 3, # 4, and sub-task 2H, while the remainder continues through 6/30/2011.

319 Nonpoint Source Program Grant for FFY 2009 and FFY 2010 (C-900044906-0) - Section 319 nonpoint source grant from EPA in the amount of $7,437,000 is provided for two years and is used to help implement the state's nonpoint program.

B. Organizational Experience. The Washington State Department of Ecology has consistently demonstrated the managerial, technical, administrative, legal, contractual, fiscal, and information systems capabilities needed to successfully achieve the objectives of this proposal. We have demonstrated a strong and successful record with sub-awards and federally funded projects. Ecology is ready to proceed with this grant to improve the waters of Puget Sound.

C. Staff Expertise, Qualifications, or Knowledge. Ecology staff and project managers have been leaders in the fields of nutrient, pathogen, and toxics removal and treatment, statewide NPDES permit policy and management, and NPDES permit implementation. Other staff working on these projects deal directly with development and implementation of dangerous waste regulations, and with NPDES, water rights, and water quality policy and procedure development. The Department of Ecology has the scientific, technical, administrative, and project management expertise to successfully manage this grant and its sub-awards. Andrew Kolosseus manages outreach and regulatory issues for the South Puget Sound Dissolved Oxygen Study and the Puget Sound Dissolved Oxygen Model. He has 11 years of experience on large projects for Ecology's Water Quality Program. Megan Warfield works in the Waste 2 Resources Program, currently coordinating a key initiative under the state's Beyond Waste Plan. Ecology will manage this program in partnership with Department of Health, who will provide assistance with on-site sewage issues and toxics-related human health assessments.

Staffing

Ecology has established a team to accomplish work under this grant. While the three functions described below are funded under this grant, many more technical staff at the program level will be involved. All members of the functional team below will be involved in all four components of

the work plan, and the costs associated with these FTEs have been divided across components 1-4. Ecology has allocated 0.4 FTE for component 1, 1.2 FTE for component 2, 0.4 FTE for component 4. For component 3, an additional .4 FTE has been allocated under area of investment E1. This is a total of 2.4 FTE in Round 1.

Ecology intends to hire for these positions. Until staff are on board and specific skill sets are known, it is hard to precisely match these positions with the components of the Work Plan. Ecology envisions these positions functioning as a team, will all team members working on all the components in various capacities. Until these positions are hired, the staff who have worked on the proposal and application will continue to work on this project.

The **Puget Sound Lead for Toxics and Nutrients** is the Ecology's representative on the LO Coordinating Group and Core Team, and is the main point of contact between Ecology and the EPA Program Officer. This full time position will work on behalf of Ecology programs affected by toxics and nutrients work, pulling in relevant expertise for policy work. The Lead will interface with PSP leads on appropriate interaction with the ECB and for updates and revisions to the Action Agenda. The Lead will also facilitate internal Ecology coordination with various management teams and advisory groups.

The **Puget Sound Grant Award Coordinator** will be responsible for tracking the progress of sub-awards, managing data, and communicating project implementation issues to the Puget Sound Lead for Toxics and Nutrients. Half of the Puget Sound Grant Award Coordinator will be funded under this grant, the other half will be funded under the Watersheds proposal.

The **Puget Sound EPA Coordinator** will manage interactions with the EPA on grant reporting and work with the Core Team to support that work. Half o the Puget Sound EPA Coordinator will be funded under this grant, the other half will be funded under the Watersheds proposal.

These positions will be "matrix" positions between Ecology programs, primarily Water Quality and Waste 2 Resources, closely coordinated with our Executive Puget Sound Coordinator.

The Toxics and Nutrients Team will work to develop the six-year strategy with key tasks needed to reach relevant PSP ecosystem targets, which will be revised annually as part of the adaptive management process. The Team will evaluate environmental monitoring data collected under this project according to the EPA-approved Quality Management Plan. Data will be entered into a STORET-compatible system for reporting to EPA.

COMPONENT FIVE - MATCH

(See Components 5 of work plan and budget for additional details)

Ecology has identified matching state funding in support of this application for Rounds 1 & 2 in the amount of $12,000,000. These funds have been appropriated to Ecology in the 2010 Capital Supplemental Budget for stormwater projects. The Stormwater Retro Fit and LID program helps

communities work towards protecting and recharging aquifers and reducing the run-off of toxics and nutrients into Puget Sound. Grant funds are awarded to local governments and non-profit organizations in the Puget Sound area. The grants are for the management of stormwater through planning, implementation, regulation, and prevention.

Future match funding beyond Rounds 1 & 2 in the amount of $36,000,000. Funds are appropriated by the legislature to Ecology in the capital and operating budgets for managing pass through grant programs. Grants are awarded competitively to local jurisdictions and communities in and around Puget Sound for high priority watershed planning, water quality improvement, stormwater, and toxic cleanup projects. These funds are projected to be available in sufficient quantities in rounds three through six of the program to support state match requirements for Federal funds under this agreement. Ecology assumes the Governor and legislature will continue funding support for major ongoing programs in the Puget Sound region such as the Centennial Clean Water capital program, the Remedial Action Grant (RAG) capital program which cleans up toxic contamination, Watershed Plan Implementation capital projects, and Watershed Planning activities from the operating budget. These programs and projects are well established and supported by stakeholders. They help communities work towards a variety of Puget Sound environmental improvements such as managing stormwater, building and updating wastewater treatment facilities, cleaning up aquatic and upland toxic contamination, improving streamflows, and protecting and recharging aquifers. They also contribute to economic development opportunities and job creation in the Puget Sound region.

These nonfederal matching funds are now committed to this proposal and they have not been previously used to provide nonfederal match for any other federal financial assistance grant or project.

TECHNICAL APPROACH FOR TOXICS AND NUTRIENTS

(See Components 2 of work plan and budget for additional details)

Goal

The goal of the toxics and nutrients strategy is to protect and improve both human and environmental health in the Puget Sound ecosystem. Prevention is the smartest, most cost effective, and healthiest approach to reducing toxic threats and nutrient impacts. Thousands of toxic chemicals are in use today. They are in the air, water, soil, animals, fish, and our bodies. Some toxic chemicals impair development, some affect reproduction, some disrupt body chemistry, and some cause cancer. Some chemicals have limited impacts on humans but can be devastating to fish or other species. Nutrients occur naturally in the marine and fresh waters of the Puget Sound ecosystem, but human contributions of excess nutrients can lead to lower levels of dissolved oxygen as algae blooms and other organic matter decompose. The toxics and nutrients strategy must include activities to manage and clean up problematic levels in the environment.

As Lead Organization, Ecology will work with various partners at the federal, tribal, state, and local levels and non-governmental organizations, academia, and business to develop and implement projects in line with our strategic framework. To address toxics in the Puget Sound ecosystem we must reduce toxic chemicals in products and prevent toxic chemicals in stormwater. The nutrients approach focused on determining the extent that human sources of nutrients are affecting the Puget Sound ecosystem and how much reduction is necessary to meet water quality standards. Next, actions must be taken to reduce the loading of nutrients in a prioritized fashion. This strategic framework includes a multi-pronged approach to reduce toxics and nutrients from entering and impacting the Puget Sound ecosystem:

A. **Scientific investigation of toxics and nutrients.** One of the guiding principles of the Puget Sound Action Agenda is "to use scientific input in designing, implementing, and evaluating strategies." Continued scientific work to better understand the sources, transport and fate of toxics and nutrients in the Puget Sound ecosystem is ongoing and will inform strategies implemented under this framework.

B. **Prevent substances from being used in the first place**. Goal 4 of the Draft FY 2011-2015 EPA Strategic Plan, identifies "preventing pollution before it is generated" as a key element of national environment policy. Prevention program elements under this strategic framework seek ways to eliminate or dramatically reduce the use and generation of toxic substances in the first place as a key approach to preventing toxic "pollution from being introduced into the Puget Sound ecosystem" (Priority C.1 from the Action Agenda). Washington's bans on phosphorus in detergent and copper in brake pads are examples of reducing nutrients and toxics through preventative approaches.

C. **Limit or manage the amount of toxics and nutrients released into the environment.** Both the Puget Sound Action Agenda (Priorities A & C) and the Draft FY 2011-2015 EPA Strategic Plan (Goal 2 and Goal 3) call out actions to promote healthier communities and prevent

releases of harmful substances. For example, Priority C.1 from the Action Agenda lists source control tactics such as education, pollution prevention, innovative technologies and technical assistance.

D. Clean up substances that have polluted air, land or water. While prevention is the priority of the framework, Ecology and its partners recognize the importance of removing substances from the environment to stop further exposures. Priority C.5 in the Action Agenda calls for prioritization of cleanup and remediation projects to reduce toxic loading into the Puget Sound. And Goal 3 of the Draft FY 2011-2015 EPA Strategic Plan refers to cleanup and restoration of contaminated areas.

E. Measure program performance and use adaptive management to continuously improve programs. The Puget Sound Action Agenda Priority E calls for the creation of an accountability management system. Ecology and its partners will work together on developing indicators, targets and measurement systems to track progress towards desired ecosystem outcomes.

STRATEGIC FRAMEWORK/INVESTMENTS **(See Component 2 of work plan and budget for additional details)**

The strategic framework focuses on priority activities to prevent or reduce toxic substances and problematic nutrients, building on activities in both the Puget Sound Action Agenda and Draft FY 2011-2015 EPA Strategic Plan. Projects will focus on implementation activities, but may develop, refine, or strengthen existing programs, or start new work. This strategic framework identifies high level program areas, and addresses how we will perform activities identified in the RFP.

A. Scientific Investigations of Toxics and Nutrients

(A1) Identify and Prioritize Sources of Toxics Contributing the Most and Having the Greatest Impacts on Puget Sound - Characterize Substances, Sources, Pathways and Effects – For toxics, there are troubling gaps in the available data and state of knowledge on many widely used chemicals (Draft FY 2011-2015 EPA Strategic Plan, Goal 4). Building on the results of the Puget Sound Toxics Loading Assessment and Synthesis Analysis, continued scientific work to better understand sources, transport and fate of toxics in the Puget Sound ecosystem will be needed (Action Agenda C.1.1.10). While the ongoing efforts will result in increased understanding of the relative sources, we anticipate the need to collect supplemental data to refine levels of toxic substances in products, humans, animals and the environment. The topics will be developed based on the outputs of the current effort. The monitoring efforts also include evaluation of the public health and environmental risks (including health effects in biota) posed by pharmaceuticals, personal care products and other emerging contaminants. We will pilot innovative monitoring program technologies in key areas of Puget Sound that may include remote sensing, continuous sensors, and sediment studies. To effectively address toxic threats, we need to understand major sources and critical pathways to the environment and humans, and use this information to focus prevention, management, and cleanup actions. Effectiveness monitoring of environmental endpoints will be included and detailed during in

the first year, but internal resources will be used (no round 1 funding). (Round 1: $0, Round 2: $450,000, Rounds 3-6: $2,000,000, Total: $2,450,000)

(A2) Identify and Prioritize Sources of Nutrients Contributing the Most and Having the Greatest Impacts on Puget Sound - Characterize Sources, Pathways and Effects – Several ongoing efforts are identifying and quantifying threats posed by the larges sources and pathways of nutrients (wastewater treatment plants and rivers flowing into Puget Sound). These fully funded projects include the Puget Sound-wide Dissolved Oxygen Model developed by the Pacific Northwest Labs and Washington Department of Ecology; South Puget Sound Dissolved Oxygen Study developed by Ecology; and the Hood Canal Dissolved Oxygen Program developed by the University of Washington and its partners. This area of strategic investment will leverage these existing nutrient efforts to identify other areas of concern or topics in need of follow-up actions. More detailed analysis may be needed for some areas such as Whidbey Basin, and targeted management actions will be identified in the next year. Nutrient monitoring may include point and nonpoint sources, tributaries, air deposition, and groundwater. We will pilot innovative monitoring program technologies in key areas of Puget Sound that may include remote sensing, continuous sensors, and sediment studies. Effectiveness monitoring of environmental endpoints will be included and detailed during the first year, but internal resources will be used (no round 1 funding). (Round 1: $0, Round 2: $250,000, Rounds 3-6: $4,150,000, Total: $4,400,000)

B. Prevention Activities

(B1) Reduce Use and Generation of Toxics Through Development of Safer Alternatives - Conduct Alternatives Assessments – Ecology will lead a collaborative process with stakeholders to define elements of and finalize a method for conducting alternative assessments, using existing models as a starting point for discussion. Based on the results of the Puget Sound Toxics Loading Study and Synthesis Report, we will identify chemicals or products that are good candidates for scientifically defensible assessment and work with partners (sub-awardees) to conduct alternatives assessments. We will support safer alternatives research, promote the use of safer alternatives, and create incentives to encourage the development of safer alternatives. This aligns with statements in Goal 4 of Draft FY 2011-2015 EPA Strategic Plan, “accelerating work to identify safer alternatives,” and “evaluating chemicals in use.” It also aligns with items C.1.1.2 and C.1.1.4 in the Action Agenda, “promote safer chemical alternatives,” “advocate for safer chemical substitutions,” and “development and use of safer chemical alternatives and products”. (Round 1: $329,000, Round 2: $300,000, Rounds 3-6: $1,225,000, Total: $1,854,000)

(B2) Build on Programs to Prevent PBTs (Persistent Bioaccumulative Toxics) and Other Chemicals of Concern from Entering Puget Sound – We will continue and enhance current efforts to phase out the use of PBTs by accelerating Ecology’s work to complete Chemical Action Plans. We will use a sub-award process to develop innovative methods to reduce the use of PBTs and other chemicals of concern (endocrine disruptors, metals, pesticides, diesel particulates, and emerging contaminants such as pharmaceuticals, flame retardants,

plasticizers, personal care products, and nanomaterials). Actions may include implementing Washington's Beyond Waste Plan (Action Agenda item C.1.1.6), Ecology's PBT Strategy (Action Agenda near term action C.1.2), and implementing or enhancing air management plans (Action Agenda near term action C.1.2.6). (Round 1: $450,000, Round 2: $820,000, Rounds 3-6: $2,836,876, Total: $4,106,876)

(B3) Provide Education and Technical Assistance – We will work with PSP, ECO-Net, and LIOs to implement the regional public engagement work plan being developed by PSP's education and outreach team. This team will play a lead role in coordinating LIO and LO delivery of regional and watershed messages. Understanding how LIOs can tap into and leverage existing ECO-Net capacity will be a key part of this effort. The ECB would inform and help implement the public education and outreach portion of the strategy in coordination with PSP's overall effort. This will include feedback on an integrated work plan to integrate the public awareness and engagement efforts of each LO with those of PSP's work. Our goals would include incorporating clear, consistent public health and environmental messaging about reducing toxic threats and how to control nutrients for businesses and the public. We will support programs to train professionals such as architects, landscapers, teachers, engineers and chemists and to engage volunteer citizen scientists to address toxic threats and promote green chemistry approaches. Action Agenda item C.1.1.1 specifically calls out education and technical assistance actions, "conduct focused business and citizen outreach aimed at controlling and reducing high priority chemicals, pharmaceuticals, and personal care products." And Action Agenda near term action C.1.1 states "conduct a focused outreach campaign for the public and businesses to reduce pollutants identified in toxic loading and other studies that are priority threats to Puget Sound". Round 1 funding will be used for a targeted educational work around agricultural issues, in coordination with, but beyond the current scope of work being conducted by the Puget Sound Partnership. (Round 1: $150,000, Round 2: $321,719, Rounds 3-6: $1,055,000, Total: $1,526,719)

C. Management and Control Activities

(C1) Fund Activities to Prevent, Reduce, and Control the Sources of Nutrients – This proposal would develop and implement programs to address low dissolved oxygen concentrations and other nutrient-related impacts in Puget Sound. This area of investment would fund implementation projects beginning in 2011, with an emphasis on Hood Canal (lowest dissolved oxygen), Budd Inlet (low dissolved oxygen), Whidbey Basin (large agricultural sources of nitrogen), or other areas with known problems. These projects would not only address specific problem areas but they would evaluate their effectiveness for use throughout Puget Sound. Beyond Round 1 it would create a funding source for South Puget Sound to conduct TMDL (or other management plan) implementation and then move to the rest of Puget Sound. Funding can be used to reduce nitrogen loads from on-site septics, residential or agricultural fertilizer use, other agricultural sources of nitrogen, wastewater treatment plants, stormwater, or other human-caused source of nutrients. It can address marine or freshwater and nitrogen or phosphorus. All projects funded in this category must result in reduced nutrient loading. (Round 1: $455,573, Round 2: $2,766,719, Rounds 3-6: $9,466,876, Total: $12,689,168)

(C2) Continue to Upgrade and Invest in Innovative Treatment and Control Technologies to Prevent, Reduce and Control the Release of Toxics and Nutrients – We will research technologies and strategies to prevent, reduce, or control the release of toxics to stormwater and other non-permitted sources. We will advance infrastructure upgrades and treatment technologies that will help control stormwater flow and improve water quality in accordance with Action Agenda item C.1.1.7, "continue to invest in technologies that reduce toxic pollutants." We will continue the transition of the region to the LID stormwater management approach by introducing LID concepts during the municipal NPDES stormwater permit process. We seek partners to provide training and technical assistance on LID approaches. We will continue to identify and promote best management practices (Action Agenda near term action C.2.3). For nutrients, both permitted and non-permitted discharges will be addressed and technical assistance will be provided to entities in need. Ecology and others are currently evaluating nutrient removal technologies for municipal wastewater treatment plants. The effectiveness of non-proprietary technologies for removing nitrogen in septic systems needs to be evaluated. (Round 1: $926,573, Round 2: $550,000, Rounds 3-6: $3,450,000, Total: $4,926,573)

Growing concerns of nitrogen loadings from on-site sewage systems to the Puget Sound has lead to the need for research efforts to evaluate alternative approaches to managing decentralized nitrogen treatment that are cost-effective, reliable, and low maintenance. An On-Site Sewage Nitrogen Removal Technologies study will evaluate two new innovative public domain technologies that have shown to be capable of removing total nitrogen greater than 80% from various wastewater sources in other areas of the country. The goal of the study is to examine the nitrogen removal rates of the technologies through performance monitoring under field conditions in the Puget Sound basin. The Washington State Department of Health would lead this $600,000 study. The additional money allocated in Round 1 would be for toxics-related work.

(C3) Encourage Agriculture BMP Implementation, and Other Actions to Reduce Surface Water, Ground Water, and Air Quality Impacts From Agriculture –
Ecology will work closely with the agricultural community (including the Washington State Department of Agriculture, the Washington Conservation Commission, Natural Resources Conservation Service, and local Conservation Districts) to develop approaches to manage and control pollution from agricultural practices. More detailed strategies, task, outputs and outcomes will result from these discussions. Since agriculture manure management and management of other agricultural practices is a significant consideration in nutrients and pathogen control, Ecology will work closely with the Washington State Department of Health (DOH) – the lead organization for the pathogen cooperative agreement – to include nutrient management in other agricultural related projects funded under the pathogen agreement. (Funded through pathogen grant).

(C4) Strengthen Authorities and Policies and Develop Decision-Making Tools – We will strengthen our authorities to deal with toxics in products and the environment. We will ensure our policies align with the state reducing toxic threats goals and principles, evaluate

existing standards to assure they adequately product human health and the environment and prevent recontamination of cleanup sites, modernize our information systems, and develop decision making tools to guide our work. Emerging chemical policies, including regulation of nanomaterials need to be addressed before these materials go into widespread commerce and use, as identified in Draft FY 2011-2015 EPA Strategic Plan Goal 4. We will work with EPA on modernization of the Toxic Substances Control Act (TSCA), while simultaneously strengthening the state' ability to address toxic substances be it requiring submission of information, producer responsibility, or outright bans. In addition to Ecology's state and local partners, the Stormwater Technical Resource Center (STRC), co-managed by Washington State University and the University of Washington Tacoma along with their partners, is positioned to assist in developing tools, guidance and models to assist in decision making. (Round 1: $0, Round 2: $0, Rounds 3-6: $950,000, Total: $950,000)

(C5) Increase Compliance and Enforcement of Environmental Laws and Standards – Goal 5 of Draft FY 2011-2015 EPA Strategic Plan, asserts that enforcement has a role in achieving the goals of this strategic framework. "Protect human health and the environment through vigorous and targeted civil and criminal enforcement. Assure compliance with environmental laws." It goes on to state, "Enforcement reduces direct human exposures to toxic chemicals and pesticides and supports long-term human health protection." Ecology's Hazardous Waste and Toxics Reduction program has noted an increase in compliance violations. Making progress towards toxics and nutrients reductions will require compliance resources both inside and outside the agency to appropriately enforce environmental laws. We will support technical assistance programs such as local source control as well as innovative cost-share and loan programs for business that prevent pollution and improve air and water quality. (Round 1: $0, Round 2: $750,000, Rounds 3-6: $2,225,000, Total: $2,975,000)

(C6) Evaluate Whether Water Quality Standards are being met for Toxics and Nutrients in the Puget Sound Ecosystem – For nutrients, Ecology will use the ongoing studies to evaluate if the water quality standards are being met. Ecology will work with our partners and stakeholders in developing the TMDLs or other mechanisms as needed to improve water quality. For toxics human health criteria, the fish consumption part of toxics water quality standards need to be evaluated and updated. As part of Round 1 subawards, Ecology would like to provide funding to the Northwest Indian Fisheries Commission to work with federally recognized tribes in Washington, and tribes that have usual and accustomed lands in Washington, to develop a fish consumption rate that is acceptable to the tribes for development of water quality criteria for toxics. Many toxics issues in Puget Sound may be successfully addressed by funding Straight-to-Implementation projects for marine or freshwater. (Round 1: $100,000, Round 2: $800,000, Rounds 3-6: $1,050,000, Total: $1,950,000)

D. Cleanup Activities

(D1) Prioritize and Accelerate Remediation and Cleanup of Hazardous Waste Sites in the Puget Sound Area – Draft FY 2011-2015 EPA Strategic Plan Goal 2 and Goal 3 acknowledge the need to cleanup and restore waters in order to support healthy ecosystems and promote

sustainable, healthier communities. Action Agenda near term action C.5.1 calls for continued implementation of high-priority remediation and clean-up projects. While Ecology believes we need to shift resources to prevention approaches, we also believe there must be some level of cleanup. There are several ongoing activities designed to prioritize and accelerate cleanup projects in Puget Sound. Ecology will refine prioritization criteria for cleanup to incorporate the PSP's guiding principles for ecosystem management. Ecology is also developing rule revisions to clarify cleanup requirements for sediment cleanup. However, the key challenge in the next several years will be to better align and sequence source control, cleanup, and remediation projects. This will allow us to more effectively prevent recontamination of areas where legacy contamination has been cleaned up. This will also support efforts to reduce toxic loadings, restore ecosystem processes, and implement long term stewardship, as called for in Action Agenda item C.5. (Round 1: $0, Round 2: $225,000, Rounds 3-6: $525,000, Total: $750,000)

E. Administration, Effectiveness Monitoring Performance Measurement and Adaptive Management (See Component 3 of the work plan and budget for details)

(E1) Monitor for Effectiveness, Measure Performance, and Adapt Programs as Necessary. Adaptive management provides a feedback loop to ensure that efforts to reduce threats from toxics and nutrients are both successfully implemented and result in positive environmental change. Each of the areas of investment described above will identify performance measures for both implementation and environmental results for that specific area. A1 and A3 will include environmental performance measures. This strategic investment area compiles that information and includes the overall coordination role. Appropriate program and environmental effectiveness monitoring will depend on specific health/impact metrics to measure recovery. All projects will include a performance management system that includes adaptive management, monitoring, accountability and coordinated data management. These tasks are outlined in the Action Agenda Priority E, "Build an implementation, monitoring, and accountability management system." Ecology will accomplish this work in coordination with other Lead Organizations, the Partnership/Management Conference, and other arms of the Puget Sound Partnership, aligning with the dashboard of ecosystem indicators where possible. (Round 1: $48,142, Round 2: $144,426, Rounds 3-6: $577,704, Total: $770,272- Note this budget is for Ecology FTE costs, not sub-award money)

TIMELINE AND SEQUENCE **(See attached work plan for more detail)**

Part of the framework includes a basic sequencing of actions to address toxics and nutrients:

- Characterize the sources, pathways, loadings and environmental and human health effects of toxics and nutrients;
- Prescribe solutions to reduce the impacts;
- Take action by implementing identified solutions; and,
- Monitor the effectiveness of solutions so that future plans can be modified to improve actions taken.

For toxics, initial focus areas are: **alternatives assessment**, **PBTs**, and **stormwater**. Investment in safer alternatives assessment gets us closest to our goal of preventing toxic threats in the first place; we know PBTs are an ongoing problem and have already identified reduction strategies for three chemicals through Chemical Action Plans; and we know stormwater is a major pathway for toxics and nutrients entering the Sound. In the first year, Ecology would give priority to projects that support progress in one or all of these areas. For example, if the Toxic Loadings study points to a certain PBT in stormwater, Ecology would give priority to projects that address both. Projects in other areas would be incorporated over time using the four-step process outlined above (characterize, prescribe, implement, monitor).

For nutrients, funding in the first year is focused on **implementation** in areas with known problems (such as Hood Canal), **education**, and **technical assistance**. Over the six years of the grant, all parts of the nutrients strategy would be funded, with over half the funds going to implementing projects that will reduce nutrients.

ROUND ONE:

- Quickly conduct a process to develop project selection criteria and solicit and select projects that advance an alternatives assessment methodology, reduce use, release or loading of PBTs, control stormwater, reduce nutrient loading, advance education, and provide technical assistance. Begin work on projects.
- Establish performance measurement and effectiveness monitoring criteria for selected year one projects.
- Review results of Toxics Loading Study synthesis report and Puget Sound Dissolved Oxygen Model and incorporate findings into overall strategic framework.
- Establish process and criteria for selecting projects in following years.

ROUND TWO:

- Launch new projects, again giving priority to projects that advance alternatives assessments methodology, reduce PBTs, control stormwater, and implementation of actions to reduce nutrient loading.
- Assess existing data to identify gaps in our knowledge of toxic pathways, particularly with regard to emerging contaminants. This includes data gaps related to the presence of toxic chemicals in key biota and associated impacts.
- Conduct an alternatives assessment.
- Complete a CAP and begin implementing key recommendations.
- Review results of the South Puget Sound Dissolved Oxygen Study and incorporate findings into overall strategic framework.
- Incorporate projects that address other areas of the strategy. Explore broader outcome measures. Expand technical assistance programs.
- Review results from previous year and adapt projects as necessary.

ROUNDS THREE, FOUR, FIVE, and SIX:

- Incorporate projects that address other areas of the strategy. Introduce educational projects that include STORM. Analyze stormwater data and research technologies to reduce impacts.

Pilot stormwater project. Include stormwater education component. Introduce projects to address emerging contaminants. Work on stormwater retrofit projects. Develop legislative strategies.

- Update Puget Sound evaluation of toxics in biota.
- Review results from previous years and adapt projects as necessary.

OUTPUTS AND OUTCOMES

All projects funded under the strategic framework outlined above will be linked to specific outputs and outcomes. Where possible, linkages will also be made to the Puget Sound Partnership's dashboard of ecosystem indicators and the EPA's Strategic Measures outlined in Draft FY 2011-2015 EPA Strategic Plan. Data collected will inform the Puget Sound Management Conference's performance management system.

Toxics Outputs:

- Prioritized list of activities that clearly identifies projects to prevent, reduce, and control the major sources of toxics (especially PBTs) entering Puget Sound. This list would be synchronized with high priority sediment cleanup projects to prevent/minimize recontamination of those areas. Completion of high priority chemical action plans (CAPs).
- Identification of the scientific data gaps in our understanding of the sources, pathways, loadings, and impacts from toxics and the research and resources needed to fill those gaps.
- A public education and outreach program to prevent, reduce, and control toxics from entering Puget Sound and minimize impacts to public health and the environment.
- Identified new or improved treatment and control technologies or strategies to prevent, reduce, and control the release of toxics.
- Expanded program to encourage the development of safer alternatives for products that contain or release toxics and programs that promote green chemistry. Completion of high priority alternatives assessments.
- Increased number of businesses adopting best management practices to reduce stormwater flow.
- 6-year strategy on how to reduce toxics loadings to Puget Sound, including project prioritization schemes and sub-award selection criteria.

Nutrient Outputs:

- Identification and prioritization of the major nitrogen-contributing sources and how much they need to be reduced to meet water quality standards.
- Identification of areas where water quality standards for nutrients are not being met in Puget Sound and activities needed to achieve standards.
- Identification of nitrogen and phosphorus sources in the watersheds that cause problems in freshwater or lead to problems in the marine water.
- Identification of efficient monitoring techniques and improved certainty in quantifying nutrient sources, transport, and fate in the Puget Sound ecosystem.
- Approve non-proprietary technologies for removing nitrogen in septic systems.
- A public education and outreach program to reduce nutrients from entering Puget Sound.

- 6-year strategy on how to reduce nutrient loadings to Puget Sound, including project prioritization schemes and sub-award selection criteria.

Toxics Outcomes:

- Improved human health.
- Altered behavior by consumers, communities, municipalities, and businesses with respect to reduced toxics use and increased use of safer alternatives, ultimately improving public health and the environment. (Link to PSP's Dashboard Indicator under development, Sound Behavior Index).
- Reduced quantity of high priority toxics entering the Puget Sound ecosystem.
- Improved function and productivity of the Puget Sound ecosystem.
- Increased jobs and economic development opportunities through green chemistry research and development.
- Decreased toxics in fish; specifically, Pacific herring, English sole and a salmon (PSP Dashboard Indicator). Improved biota health.
- Decreased toxics in sediment. Improved health of sediments with respect to 1) concentrations of toxics, 2) degree of toxicity, and 3) community structure of sediment-dwelling organisms. (PSP Dashboard Indicator).
- Improved compliance at regulated hazardous waste facilities.
- Reduced number of consumer goods containing toxic materials sold in Washington State.

Nutrient Outcomes:

- Reduced quantity of nutrients entering Puget Sound that impact the environment and human health.
- Increase dissolved oxygen concentrations (note: given year-to-year variability, identifying an improving trend will be difficult in the short time-frame of the project).
- Increased use of nitrogen-removing septic systems and decrease loading of nitrogen from septic systems.
- Reduced nitrogen and phosphorus loading from agriculture.
- Altered behavior by consumers, communities, and businesses with respect to nutrient use.
- By spending money more wisely, greater reductions in nutrient loading will be achieved with the available funds.